

An Examination of Stock Market Response to NASCAR Race Performance

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ABSTRACT

We use event study methodology to examine whether the short-term stock performance of firms that sponsor NASCAR race teams is tied to the teams performance in actual races. Previous researchers have been unable to show that this relationship exists. Consistent with this previous work, we find no unusual performance based on finish for the overall sample. However, we do find significant relationships when Winston Cup points are used and when the sample is decomposed along B2B vs. B2C lines based on prior theoretical literature. Importantly, we find that there is a positive relationship between race and stock performance for sponsors that market to consumers but no such relationship for firms that market to businesses. Additionally, we find positive returns for firms in the auto industry regardless of the sponsors' customer group.

Financial theory states that the current price of a firm's stock represents the present value of expected future cash flows. Marketing is concerned with increasing future sales and, by extension, future cash flows. This linkage (through expected future cash flows) allows a researcher to test the market's perception of marketing strategies by examining stock price changes.

A commonly used marketing strategy is the use of corporate sponsorship of athletes and NASCAR race teams. Market efficiency theory suggests that, upon announcement of the sponsorship deals, market participants should make investment decisions based on their expectations of how effectively the celebrity athlete will represent the firm and whether this sponsorship deal will lead to higher future cash flows. Consistent with this, Pruitt, Cornwell, and Clark (2004) find that on the announcement of the sponsorship deal, sponsoring firms experience "the largest increases in shareholder wealth ever recorded in the marketing literature in response to a voluntary marketing program."

Because the actual performance of the race team actions over the life of the endorsement contract is unknown at the time of the signing, firms and investors must make forecasts as to these expected outcomes. To the degree that the actual actions differ from expectations and to the degree that these actions impact consumers' decisions, events subsequent to the signing of the contract will affect the marketers' message either positively, or negatively. That is, if a firm signs a team that is expected to win, and the team has an awful year, then it could be expected that the sponsor will not see the same benefits as if the team had done well.

Outside of NASCAR, researchers have analyzed similar performances. Louie, Kulik and Jacobson (2001) find that sponsors in other sports experience a negative stock market reaction following "events that have a deleterious effect on the spokespersons". Similarly, Drewniak,

Mahar, and Russell (2004) report that positive performances of star endorsers in team and individual sports are associated with positive abnormal returns, while arrests, injuries, and retirements of the same star endorsers are associated with negative abnormal returns for the sponsoring firm.

Two papers that relate directly to this paper are Cornwell (2001) and Dussold and Sullivan (2003). Cornwell (2001) examined returns of sponsors around the Indianapolis 500 and found insignificant abnormal returns for race winners, but significant differences based on the similarity of the product being endorsed and the auto industry. Sullivan and Dussold (2003) found that stock prices of firms that sponsor NASCAR teams experienced negative abnormal returns following races in which the team was in an accident but could not find positive abnormal returns following wins.

In this paper we examine the stock price reaction to NASCAR races on sponsoring firms by examining excess returns using an event study methodology. For the entire sample, we find only weak evidence of a relationship between race performance and excess returns. This lack of a strong relationship is consistent with Sullivan and Dussold (2003). However, within sub samples where the hypothesized impact of the sponsorship would be greatest, there is a significant relationship. Specifically we find that for consumer products there is a significant positive relationship between race performance and stock returns. This is consistent with the Petty, Cacioppo, and Schumann (1983) hypothesis that states that the greatest benefit of sponsorship should be in low involvement (consumer) products. However, when business to business (B2B) firms are examined, we find no relationship between race performance and subsequent stock performance.

In addition to the B2B sub sample finding, we find positive returns within the auto industry, independent of race performance. This latter finding, while somewhat surprising since

the cars in the race are known in advance, is related to the Cornwell (2001) finding that sponsorship of cars in the Indianapolis 500 is more useful for auto-related firms. The finding of a positive average return independent of performance is also consistent with Carnahan (2004) who reports that Super Bowl advertisers enjoy a positive stock reaction immediately after the Super Bowl even though the information as to who is advertising is well known prior to the game.

The paper is organized as follows: Section 2 is a literature review, Section 3 provides a discussion of the data and methodology used in the paper, Section 4 presents the empirical results and their implications, and Section 5 presents the conclusions and possible avenues for future research.

2. Literature Review

The literature surrounding sponsorship and stock market returns incorporates studies performed in both finance and marketing. The following is a short overview of the literature surrounding the concepts of endorsement, sports in general, and auto racing in specific.

Gwinner and Eaton (1999) proposed that sponsorship is based largely on the “image transfer model.” This so-called halo-effect is the idea that sponsorship can link the sponsoring firm with the success of the endorsee. It is expected that this transfer is most significant when the sponsor is either image-related or function-related to the event/athlete.

Petty, Cacioppo, and Schumann (1983) hypothesized that the ability of sponsorship to influence consumer purchase behavior is dependent on the level of involvement in the purchase decision. That is, products with low purchase involvement are more affected by sponsorships than high involvement purchases. For purposes of this paper, it should be noted that Business-to-

business (B2B) transactions are more apt to be high involvement purchases, whereas business to consumer (B2C) products are seen as low involvement purchases.

Empirically, the success of sponsorships is fairly well established. Agrawal and Kamakura (1995) reported that firms that announce new celebrity endorsements experience positive stock returns. Mathur, Mathur, and Rangan (1997) examined the stock market reaction to the 1995 announcement that Michael Jordan was returning to the NBA. They found that the “Michael Jordan effect” resulted in “an average increase in the market-adjusted values of his client firms of almost 2 percent, or more than \$1 billion in stock market value”

As with many sports, sponsorship in NASCAR plays an important role. In 2001, total sponsorship for the Winston Cup alone was “closing in on \$8600 million and growing” (Wilner, 2001). Wolf (2002) contends that “No other professional sport is as dependent on a free flow of sponsorship dollars than motorsports' varied entities.”

Sullivan and Dussold (2003) examined the role of NASCAR sponsorship in explaining abnormal returns in the capital market. Using the 2001 racing season, they find “that sponsored Winston Cup teams realized positive abnormal returns on the trading days following races.” However, they were unable to show that race performance was tied to stock performance.

Similarly, Cornwell (2001) found there to be no positive reaction to winning Indianapolis 500, but did find that for sponsors with logical or matched ties to the consumer automotive industry there are statistically and economically significant gains in their share prices around the time of their sponsorship victories. This leads to the conclusion that ideal motor sport sponsorship opportunities can be identified as those in which both the sponsors' product and image are linked and similar to the products and image of stock racing.

The inconsistency of prior marketing research concerning the link between marketing efforts and financial outcomes might leave managers with the “intuitive impression that a good

image is probably better than a bad image, but with little else to guide them as to how particular corporate positioning strategies might influence consumer product responses” (Brown and Dacin, 1997). This lack of quantifiable evidence may be particularly troubling in the sponsorship arena because of the existence of agency conflicts whereby sponsorship deals may be seen as a means of managers buying access to the drivers using company money.

Consistent with this agency cost view, Farrell and Frame (1997) studied Olympic sponsorships of the 1996 Summer Olympics and found that firms that announced sponsorship deals were met with negative returns. Farrell and Frame conclude that the sponsorships undertaken by these firms may have been initiated with the self-interests of the firms’ top managers. Additionally, Crimmins and Horn (1996) note, “The senior executives of sponsoring companies obviously enjoy many non-pecuniary benefits as a result of their firm’s sponsorship activities....[and]....many sponsorships may indeed be little more than management ego trips.”

3. Data and Methodology

To test whether the performances of the sponsored race team in a NASCAR race affect the stocks of the sponsoring firms, an event study is performed for the lead sponsor of each car for the 2002-2003 racing season. Stock and market data are from Finance.yahoo.com. Sponsorship data is from NASCAR.com.

After the initial sample was created, each event was examined to assure that the sponsoring firm had no other significant news during the event window. This was done in two steps. To reduce the problem of outliers driving the results, we truncated the sample at the market excess return of greater than 4% in either direction. We then conducted a Lexis-Nexis search for the 6 days around each event. Firms were dropped if they released earnings or

earnings forecasts, announced a new issue, buyback, or dividends, acquisition, major increase in capital expenditures, new advertising campaign, new product introduction, or a new lawsuit. The resulting samples were composed of 831 firms.

After removing firms for which there were confounding events, we calculate excess returns by first calculating raw returns and then subtracting off the return on the S&P 500. The small window of our study (days -1 to +1) is both by design and by necessity. The first reason for a short window is that it model dependence and allows market adjustments to be simplified (Brown and Warner 1985). The second reason for a short window is that the number and timing of races during a NASCAR season prevents a long event window from being used.

4. Empirical Results

Basic regression results for excess returns for NASCAR sponsors are presented below. The dependent variable used in this study is excess returns for the first trading day after the NASCAR race. This is typically a Monday, except on holidays, where it is the first trading day after the holiday. Although many independent variables were considered, the independent variables included in this regression are the finish position of the car in the race and/or points accumulated by the driver of the car in the most recent race.

Points are earned in NASCAR races as outlined below from NASCAR.com:

The winner of each NASCAR race receives 180 points. The runner-up in each event scores 170. From there, the point total declines in five-point increments for places two through six, points awarded drop four points per driver for positions seven through 11 and three-point increments separate drivers' points for finishers in 12th place or lower.

The 43rd, or last-place driver, gets 34 points.

There are also bonus points up for grabs at each event. Drivers receive five points for leading a lap and an additional five points for leading the most laps.

Finish and Points are two variables that attempt to measure racing success for a given race. If the results of the race do not impact the stock price, neither should be significant. If race performance does change stock price, the variable(s) should be positive and significant. Both variables are presented individually and together in a regression with excess returns as the dependent variable. Although multicollinearity is a problem when including both variables, the results are shown to attempt to isolate which variable may lead to stock price changes.

Table 1: Excess Returns to NASCAR Sponsor Stocks

| | 1 st Trading Day Excess Returns | 1 st Trading Day Excess Returns | 1 st Trading Day Excess Returns |
|--------------------|--|--|--|
| Constant | .001455 (1.40491) | -.003545 (-1.260552) | -.002861 (-1.804608) |
| Finish Position | -5.33E-.05 (-1.176762) | 1.72E-.05 (.294742) | |
| Points | | 3.3E-.05* (1.911601) | 2.98E-05** (2.22755) |

Points are found to be significant in both regression specifications where they were included. Although very small, there was a positive and significant result in both regressions. The Points variable was found to be significant at the 10% level when finish position is included and at a 5% level when finish is not included.

Potential reasons that Points are significant and that finish position is not could be due to exposure during the race. Points are accumulated not just by finish position, but for leading laps.

The more laps that a car leads, even if it eventually crashes and does not finish a race, the more exposure the sponsor of the car receives. This could lead to the positive stock market response.

ii. Business-to-Consumer and Business-to-Business Firms and Excess Returns

We next investigate whether the involvement of the product affects the relationship between race performance and stock return to the sponsor. This is done by examining those race teams whose chief sponsor gets the majority of their business from consumers versus the sponsors who get the majority of their business from other businesses. Previous research has suggested that business-to-consumer (B2C) companies are where sponsorship should have the largest impact. Table 2 compares the business-to-consumer (B2C) sponsor company excess returns to business-to-business (B2B) sponsor company excess returns using Points from the previous race (as in table 1) as the independent variable.

Table 2: Excess Returns to NASCAR Sponsor Stocks – Business to Consumer Specific

| | 1 st Trading Day Excess Returns: B2C sample | 1 st Trading Day Excess Returns: B2B sample |
|----------|--|--|
| Constant | -0.00341* (1.8055) | -.000935 (-.323453) |
| Points | 4.10E-05*** (2.604) | -9.94E-06 (-.0395233) |

Points are found to have a positive and significant effect in the B2C sample, but not in the B2B sample. It appears that for sponsors of products that are sold directly to consumers, the more points that a sponsor’s driver earns in the race, the greater the increase in the stock price on the next trading day. Again, this is likely due to the increased exposure that the car receives

during the race, which may exceed the amount of exposure anticipated under an efficient markets pricing of the stock.

iii. Auto Industry Sponsors and B2C Products

To further look for possible excess returns based on results of NASCAR races, we examined the possibility of auto-related companies having more sensitive stock returns in relation to NASCAR as opposed to other sponsors. Given the idea that fans of NASCAR may spend discretionary income on their own vehicles and may purchase products based on perceived successes they might observe in races, stock prices in these companies may be much more responsive to advertising exposure during the weekend race.

Three separate regression results are presented in table 3. The first shows the results of Points using excess returns of only auto industry sponsor firms. The second and third regressions in table 3 use the entire sample of excess returns as the dependent variable, but use a dummy for the joint set of auto industry firms with a B2C product and points in the second regression and just the dummy variable in the third regression.

Table 3: Excess Returns and NASCAR: Sample of Auto Industry and B2C Products

| | 1 st Trading Day Excess Returns: Auto Industry Only | 1 st Trading Day Excess Returns: Whole Sample | 1 st Trading Day Excess Returns: Whole Sample |
|----------|--|--|--|
| Constant | 0.00321 (-1.790609) | -0.00439 (-2.28477)- | 0.000212 (0.275454) |

| | | | |
|---|---------------------------|---------------------------|---------------------------|
| Auto Industry and B2C Product Dummy | | 0.004275*** (2.744504) | 0.004156*** (2.656884) |
| Points | 3.97E-05*** (2.519905) | 4.09E-05*** (2.612236) | |

In the first regression, using only the sample of auto industry firms, Points in the most recent race are shown to have a positive relationship on excess returns. This result is significant at the 1% level. In the second regression, using the whole sample, the dummy of auto industry and B2C products is shown to have a positive and significant effect on excess returns, as is points. Both are found to be significant at the 1% level. Using just the dummy variable, in regression 3, it is found to be positive as well, with significance again at the 1% level.

The finding that the Auto-B2C dummy is significant is somewhat surprising given that sponsors and participation in the races are known in advance. While uncertainty exists as to the team's actual race performance, these results imply that firms in the auto industry that sponsor a NASCAR racing team, on average, earn positive abnormal returns following a NASCAR race *regardless of performance*. This apparent market inefficiency has been previously found for Indianapolis 500 races (Cornwell, 2001) and it is similar to Carnahan (2004) who showed that firms that advertise during the Super Bowl earn positive market adjusted returns following the game even though the advertisers are known in advance.

5. Conclusions

We show that the performance (as measured by points accumulated in the race) of sponsored teams in NASCAR races is associated with changes in shareholder wealth of the sponsors. This impact is strongest for firms in the auto industry as well as for firms that sell

products directly to consumers (B2C). This relation is consistent with Petty, Cacioppo, and Schumann's (1983) conjecture that sponsorship should be most effective for low involvement goods. It is also consistent with Cornwell (2001) who finds that there is a stronger relation between sponsor and Indy race car performance where there is a logical match between the endorser and the product.

We find a lack of a significant relation between stock and race performance within the business to business (B2B) sector. This is not enough, however, to state that such sponsorship is an agency cost problem based on managerial perk consumption. Sponsorship of NASCAR race teams by a B2B firm may be worthwhile for arranging deals, entertaining customers, and other "relationship" reasons. However, it does not appear that the success of these business relationships is tied to race performance of the sponsor's team.

The finding that sponsors from the auto industry experience additional benefits of sponsorship above and beyond that tied to race performance contradicts efficiency theory, but is consistent with Carnahan's behavioral finance explanation. While it is only partially related to this current paper, the finding does deserve further examination.

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